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EXAMINER

MOORE, IAN N

ART UNIT	PAPER NUMBER
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2661

DATE MAILED: 07/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/778,101

Applicant(s)

SKOOG ET AL.

Examiner

Ian N Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 6-9 is/are allowed.
- 6) ☒ Claim(s) 1,3 and 4 is/are rejected.
- 7) ☒ Claim(s) 2 and 5 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it contains "Fig. 2" in the middle of the page. Correction is required. See MPEP § 608.01(b).
2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: **Handling error occurring power amplifier modules in base-station of a CDMA system.**

Claim Objections

3. Claims 2 and 5 are objected to because of the following informalities: Appropriate corrections are required.

Claim 2 recites an acronym "TPC" in line 27. It is suggested to describe full description of acronym when reciting first time in the claims.

Claim 5 recites, an empty open and close bracket "()" in line 4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gilmore (U.S. 5,861,844) in view of Nakamura (U.S. 6,122,265).

Regarding claim 1, Gilmore'844 discloses CDMA base-station (see **FIG. 1, CDMA Base Station 14** or see **FIG. 3, Base Station**; see **col. 3, lines 20-24**) comprising

a transmit stage (2, 4, 7, 9, 10, 11, 12) and a receive stage (3, 5, 8, 13) (see **FIG. 3, a combined system of Transceivers 79-81 and switch matrix 74**) for communicating with mobile terminals (see **FIG. 1, plurality of subscriber units 12**),

the transmit stage comprising a power amplifier (see **FIG. 3, a combined system of Transceivers 79-81 comprising a power amplifier**) having at least two independent power modules (10, 11) (see **FIG. 3, power amplifier sector modules/units/device 58,60, and 62**) for transmitting signals on at least one traffic channel (TCH) and control and pilot signals on at least one control channel (CCH) (see **col. 3, lines 17-20, 30-67; note that it is well-known in the art that any CDMA base station's transceivers and amplifiers must transmit signals on at least one traffic and control channels**),

each power module (10, 11) being capable of being operational even though one other power module is non-operational (see **FIG. 3, Switch Matrix 74; note that when any one of the device (i.e. amplifier) within any transceiver 79-81 fails, the switch matrix effectively bypass the failed amplifier/transceiver by coupling to antenna to another amplifier/transceiver; see col. 5, lines 7-13**),

the at least two power modules normally being adapted for operating simultaneously and each contributing with emitting power (see **col. 4, lines 1-9; 32-35; during normal**

operation each amplifier/transceiver couples to its dedicated sectors operates concurrently and each transmits/emits signal power)

whereby the CDMA base station moreover comprises

monitoring the error status of the power modules in the base station (see col. 6, lines 7-9; **note that an error condition is monitored in order to detect the error within transceiver 79 (i.e. amplifier)**), carrying out an error routine (see FIG. 9B), in which the following steps are undertaken,

when an error signal is detected in a base-station indicative of an error in a power module (10, 11) (see col. 6, lines 7-9; **note that an error condition is detected at power amplifier 58 which is within transceiver 79**),

immediately ending operation of all traffic channels associated with the erroneous power module (10, 11) and operation of the at least one control channel (CCH) (see col. 6, lines 7-18; see col. 5, lines 10-28; **note that the failed/error amplifier device/module within transceiver 79 is bypassed, thereby, stopping operation of all channels associated with that device/module**).

Gilmore'844 does not explicitly disclose a control module (16) sustaining operation of the at least one control channel.

However, the above-mentioned claimed limitations are taught by Nakamura'265. In particular, Nakamura'265 teaches the CDMA base station (see FIG. 3, **CDMA Base Station**; see col. 4, lines 50-56) moreover comprises

a control module (16) (see FIG. 3, **a combined system of Controller 23 and error detection processing circuit 11**) monitoring the error status in the base station, the control

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module carrying out an error routine (see FIG. 3, a combined system monitors the error status in the base station and perform a steps/routine; see col. 5, lines 60 to col. 6, lines 5) in which the following steps are undertaken,

when an error signal is detected in a base-station indicative of an error (see col. 5, lines 65 to col. 6, lines 5; note that upon detecting error, the error detection result is supplied to the controller by error processing circuit);

sustaining operation of the at least one control channel/signal (see col. 6, lines 5-62; note that the controller continues/sustains the operation of the control channel/signal by sending commands and instruction).

In view of this, having the system of Gilmore'844 and then given the teaching of Nakamura'265, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Gilmore'844, for the purpose of providing a combined system of controller and processor which continues operating the control signal/channel, as taught by Nakamura'265, since Nakamura'265 states the advantages/benefits at col. 5, lines 45-49, see col. 19, lines 18-20, 28-35 that it would provide detecting error in the base station before the handover is done, thereby by reducing the number of base station involves in handover process, which save wire line costs. The motivation being that by detecting error and continue the operation of control signal at the base station, it will reduce the wire line cost between base stations since an optimal base station can be detected and selected for a handover, thereby, not requiring multiple base stations.

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5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gilmore'844 and Nakamura'265, as applied to claim 1 above, and further in view of Bishop (U.S. 5,570,343).

Regarding claim 3, the combined system of Gilmore'844 and Nakamura'265 discloses a fault power module as described above in claim 1.

Neither Gilmore'844 nor Nakamura'265 does not explicitly discloses when a faulty in a given cell has been detected (**see FIG. 1, Faculty cell 16 is detected**), the emission power levels and thereby the capacity of adjacent cells are enhanced (**see FIG. 1, Cells 14 and 16; see Bishop'343 Abstract, col. 2, line 1-14; note that when faulty cell is detected, the output power of adjacent cells are increased by providing a communication coverage/capacity for those subscribers in the in the cell suffering failure**).

However, the above-mentioned claimed limitations are taught by Bishop'343. In view of this, having the combined system of Gilmore'844 and Nakamura'265, then given the teaching of Bishop'343, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Gilmore'844 and Nakamura'265, for the purpose of providing a mechanism of providing communication coverage by the adjacent cells when a cell is suffering failure, as taught by Bishop'343, since Bishop'343 states the advantages/benefits at col. 1, lines 54-62 that it would provide a communication system that reduce the cost and component redundancy requirement. The motivation being that by adjacent cells providing service during the cell failure, it can reduce the cost of extra redundancy component and increase customer satisfaction by continue offering services to the subscriber.

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6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gilmore'844 and Nakamura'265, as applied to claim 1 above, and further in view of Park (U.S. 5,986,500).

Regarding claim 3, the combined system of Gilmore'844 and Nakamura'265 discloses the power module and indicating the error states of the power modules as described above in claim 1.

Neither Gilmore'844 nor Nakamura'265 does not explicitly discloses a power splitter (9) and a power combiner (12), the power splitter (9) selectively feeding each power module in response to a power splitter control signal (23), each power module (10, 11) having diagnostic lines (19).

However, the above-mentioned claimed limitations are taught by Park'500. In particular, Park'500 discloses a power splitter (9) (see **FIG. 1, Power Divider Module 100**) and a power combiner (12) (see **FIG. 1, power combiner module 300**),

the power splitter (9) selectively feeding each power module in response to a power splitter control signal (23) (see **FIG. 3, Control signals 231, 216, 232 and 233; note that the power divider selectively feeds the signals to the signal selector of each power amplifier module; see col. 8, lines 29-45**),

each power module (10, 11) (see **FIG. 1, LPA1-4, power amplifiers**) having diagnostic lines (19) (see **FIG. 3, PCD, SEL1, ADT, SEL2 lines**) on which the error states of the power modules are indicated (see **col. 8, lines 45 to col. 9, lines 12; 47-64; note that each power amplifier module have control/diagnostic lines indicating that alarm regarding the error condition of the power amplifier module**).

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In view of this, having the combined system of Gilmore'844 and Nakamura'265, then given the teaching of Park'500, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Gilmore'844 and Nakamura'265, for the purpose of providing a power divider, power combiner, selectively feeding the signals to the LPA based upon control signal, and LPA with control/diagnostic/alarm lines which states the failure/error in the LPA, as taught by Park'500, since Park'500 states the advantages/benefits at col. 2, lines 40-53 that it would sense the state of the power amplifiers before amplifying operation in order to detect a failed condition in the power amplifier, and preventing the signal lost by combining the output of the amplifiers. The motivation being that by utilizing the dividers and combiners, it can prevent the signal loss due to erroneous amplifier since the signals are selectively transmitted. The motivation being that by utilizing control and alarm signal/lines, it can increase the transmission reliability by detecting error or fault in the power amplifiers.

Allowable Subject Matter

7. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. Claims 5 is allowable over the prior art of the record, subject to correction as set forth in paragraph 3.
9. Claims 6-9 are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on 703-308-7828. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM
6/23/04



KENNETH VANDERPUYE
PRIMARY EXAMINER

* Claim 1, 9 to (10, 11)
refers so we know what
he means

Claim 1 recites, "...a power amplifier having at least two independent modules (10,11)." in line 3-4 and "...each power module (10,11)..." It is unclear whether the power modules (10,11) are "power amplifier modules" (i.e. signal power) or "power modules" (i.e. battery or electrical power supply). In specification page 7, line 15 and 20, the power modules (10,11), as recited by the claim, are disclosed as "the power amplifier modules 10 and 11".

Claim 9 is also rejected for the same reason as stated above.

Claim Rejections - 35 USC § 103

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5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gilmore (U.S. 5,861,844) in view of Nakamura (U.S. 6,122,265).

Regarding claim 1, Gilmore'844 discloses CDMA base-station (see **FIG. 1, CDMA Base Station 14** or see **FIG. 3, Base Station**; see col. 3, lines 20-24) comprising
a transmit stage (2, 4, 7, 9, 10, 11, 12) and a receive stage (3, 5, 8, 13) (see **FIG. 3, a combined system of Transceivers 79-81 and switch matrix 74**) for communicating with mobile terminals (see **FIG. 1, plurality of subscriber units 12**),